

REMARKS

In the Amendment filed on October 11, 2005, Applicants indicated that the previous Office Action included no acknowledgement of an Information Disclosure Statement that had been filed on May 18, 2005. Applicants have a postal receipt card indicating that this IDS was, in fact, received by the Patent Office. In the present and above-noted Office Action, the Examiner indicated that "[t]his IDS is not present in the application".

Applicants are providing herewith a copy of that IDS along with the postal receipt card acknowledging receipt. Applicants request that the contents of this IDS be reviewed and acknowledged.

In the subject Office Action, Claims 1 – 55 were again rejected for being anticipated by USPNo. 2,646,726 to Fogg (hereinafter Fogg). In addition Claims 27, 29 and 45 were said to be anticipated by USPNo. 1,642,866 to Ackley (hereinafter Ackley)

In response to the above-noted Office Action Applicants have amended Claims 1, 2, 8, 11, 17, 20, 22, 24, 26, 30, 33, 36, 37, 43, 44, 46, 47, 48, 52 and 55. Claims 1 – 55 are pending in the Application and presented for consideration.

Fogg is the primary reference relied upon in the present and earlier rejections. Fogg discloses an apparatus for trimming and notching paper signatures to be bound in a book. The trimming and notching is carried out by a pair of rotating cutting heads 4 as shown in Figs. VIII and XI, for example. Both heads 4 are rotated on spindles 7, with the heads 4 each including spaced-apart teeth 5. The teeth each include a cutting edge which engage the sides of the signatures or stack as the signatures are driven past the heads 4 and are driven through the width of the signatures, from one side to another. As can be seen in Fig. VIII, the depth

of material cut away or trimmed by the teeth is equal to the height of the cutting edge of the teeth 5. The cutting path defined by the moving teeth 5 is cylindrical in nature, with the height of the cylinder being equal to height of the teeth and with the diameter being slightly less than the diameter of the circular heads. If the cylindrical path were reduced or collapsed into to a plane, indicating the height of the teeth is reduced to zero, no cutting would take place. Clearly, the cutting edges of teeth 5, that part of teeth 5 of interest, are not driven in any type of cutting or piercing plane. A similar cutting edge 18 is shown in Fig. XXI which also includes cutting teeth (not designated). Again, the cutting teeth move through a cylindrical path, with the height of the cylinder being defined by the height of the teeth. The cylinder collapses down into a plane only when the height of the teeth is reduced to zero.

Fogg also discloses that, in addition to rotation, the cutting heads 4 are reciprocated once for each stack being conditioned. In the previous Amendment, Applicants incorrectly stated that there are two reciprocations per stack but this does not appear to be the case based upon the description at Col 4, lines 45 – 55 of Fogg. As a stack or signature approaches the cutting head 4 the head is already in a depressed position so as to avoid notching the stack near the leading end. Once the leading end has past the cutting head, the head is raised so that the head can proceed in cutting a notch along the length of the stack. When the trailing end of the stack approaches the cutting head, the head is depressed to prevent the notch from being cut near the trailing end with the head remaining depressed throughout the remainder of the stack. Thus, the Fogg reciprocates the head 4 only once per stack. In any event, this reciprocation takes place while the heads are rotating therefore the net result is an increase in the height of the cylindrical movement of the cutting path. Thus, the movement of the cutting teeth of Fogg is not planar in any respect.

USPNo. 1,642,866 to Ackley (hereinafter Ackley) also shows a rotary cutter in Fig. 8 with cutting teeth with cutting edges that also move through a cylindrical path rather than a planar path. Figs 4 and 5 of Ackley also show some kind of spiral

blade 43 which is difficult to describe but which clearly has no cutting edge that moves through a cutting or piercing plane.

Independent Claim 1 has been amended to recite that the "piercing member is configured to produce a piercing member movement, with said piercing member movement being substantially limited to a single piercing plane". As can be seen in Fig. 9 of the present application for example, the total movement of the piercing blade 52 is through an arc, with the arc being very small relative to the radius of the movement. Hence, movement of blade 52 is limited to a "single piercing plane". This amendment is to address the Examiner's comment at page 3 of the above-noted Office Action that if the teeth of Fogg "did not move substantially through in a piercing plane, they would not pierce the sheets" which suggests that the Examiner was incorrectly interpreting the movement of the piercing member to be limited to the movement just as the member enters and exits the stack.

As noted above, the movement of the cutting heads 4, which both rotate and reciprocate, are clearly not "limited substantially to a single piercing plane" as recited in amended Claim 1. Further, the cutting action of the heads 5 of Fogg or the cutting teeth of Ackley is premised on rotation around a cylindrical path so Applicants are aware of no art which would suggest that Fogg or Ackley could be modified in some manner so as to arrive at the claimed invention.

In view of the foregoing, amended Claim 1 is believed to be patentable as are Claims 2 – 16 and 46 which depend from Claim 1, either directly or indirectly and add patentably significant limitations to the claim.

Independent Claim 17 has also been amended to clarify that the "piercing edge" is "movable substantially exclusively in the piercing plane". As noted above, the cited prior art does not teach or suggest this movement. Thus, Claim 17 is believed to be patentable as are Claims 18 – 21 and 47 which depend, either directly or indirectly, from Claim 17 and add patentably significant limitations to the claim.

Independent Claim 22 has also been amended to recite that the stack to be conditioned defines a pair of "outer parallel sheet planes, with all of the sheets of the stack being disposed intermediate said sheet planes and with said sheet planes

being normal to a stack edge plane disposed at the stack edge.” The claim goes on to recite that the “piercing element” is caused to “repeatedly engage the stack substantially exclusively through the stack edge plane and not through the sheet planes and to then disengage the stack substantially exclusively through the stack edge plane and not through the sheet planes ...”.

This claimed approach differs substantially from that of Fogg where the cutting teeth 5 entering the stack through one “parallel sheet plane,” passes through the body of the stack and then exits the stack through the other “parallel sheet plane”. As can be seen from the detailed description of the Fogg apparatus, the only time the cutting teeth 5 may enter the stack through the stack edge is when the cutting head is reciprocated up towards the stack once for each stack. However, those few teeth 5 that may happen to engage the stack edge in this manner are very small for even one upward thrust, with such teeth invariably exiting the stack by way of one of the “parallel sheet planes” and not the “stack edge plane”. This type of “conditioning” has not been found to be effective in addressing the conditioning problems described in the present application. The same can be said of Ackley.

For the foregoing reasons, amended Claim 22 is believed to be patentable as are Claims 23 – 25 which depend, either directly or indirectly from Claim 22 and add patentably significant limitations to the claim.

Amended Claim 26 is directed to a method of conditioning an edge of a stack where a “piercing member” is driven “into the edge of a stack in a first direction and withdrawing the piercing member from the edge of the stack in a second direction generally opposite the first direction, with the first and second directions of drive into and from the edge of the stack being within  $\pm 25$  degrees of a plane of the sheets of the stack in the region of the sheets near the edge of the stack”. This approach differs from that disclosed in the cited prior art. For example, in the annotated Fig. XXI of Fogg reproduced in the subject Office Action, the cutting teeth of cutter 18 are driven “into the edge of the stack in a first direction,” with that direction being normal to the stack edge. The position and direction of movement of

those teeth not entering the stack are not relevant as clearly indicated by the claim language. Similarly, the cutting teeth of cutter 18 withdrawing from the stack are moving in "a second direction" which is also normal to the edge of the stack, with the position and direction of teeth not withdrawing from the edge of the stack not being relevant to this claim language. The claimed subject matter differs from Fogg in at least two respects. First, neither the "first" nor the "second" direction falls within the claimed  $\pm 25$  degree language. Second, the "second direction" is not "generally opposite the first direction" since the Fogg teeth move in the same direction when entering and exiting the stack edge.

As explained in Fogg, the cutting head 4 is driven upward at some location displaced from the end of the stack so that a notch is not present at that end (Col. 4, lines 45 – 54) and remains in the upward position until the head 4 is near the opposite end of the stack when the head 4 is withdrawn. Thus, the head 4 is driven upwards and then withdrawn at two widely spaced apart locations on the stack. Claim 26 has been also amended to recite that the piercing member engages the edge of the stack at a "first location" and withdraws the member from the "first location".

For the foregoing reasons, it is submitted that amended Claim 26 is allowable over the cited art as are Claims 27 – 29 which depend, either directly or indirectly, from allowable Claim 26.

Rejected Claim 30 has been amended to recite that the "drive mechanism" is "configured to drive the piercing member into the edge of the stack at first stack location and to withdraw the piercing member from the edge of the stack at the first stack location," with this action being repeated at least once again at a "second stack location different from the first stack location". As noted above, Fogg shows limited reciprocation, with engaging and disengaging the stack at widely spaced apart locations. There is clearly nothing in the prior art that suggests somehow modifying Fogg to arrive at the invention of amended Claim 30.

Accordingly, Claim 30 is believed to be allowable as are Claims 31 – 36 which depend from Claim 30 and add patentably significant limitations to the claim.

Rejected Claim 37 is directed to an apparatus of conditioning an edge of a stack of sheets using a "plurality of piercing members, with each of the piercing members including a piercing edge aligned along a single piercing axis common to all of the piecing members." Claim 37 has been amended to add the "single piercing axis common to all of the piecing members" language to further distinguish over the prior art. As shown in the annotated Fig. XXI of the Office Action, Fogg shows a plurality of cutting teeth having, each tooth having a "piercing edge." Each tooth has a piercing edge which is disposed at an approximate 45 degree angle with respect to vertical. The same is true of teeth 5 which shows a piercing edge disposed at a similar angle with respect to vertical. Thus, no two of the Fogg "piercing edges" is disposed in a "single piercing axis". Claim 37 was also amended to recite reciprocation at differing times "so that a first one of the piercing members engages the stack at a time different than a second one of the piercing members" as a result of the reciprocation. This language functions to further differentiate over Fogg where the Examiner states "all go up" at one time and "all go down" at another time.

For the reasons set forth above, amended Claim 37 is believed to be allowable over the cites art as are Claims 38 – 42 which depend, either directly or indirectly from Claim 37 add patentably significant limitations to the claim.

Rejected Claim 43, which is directed to a method of conditioning an edge of a stack of sheets, has also been amended to state "supporting the stack so that a compression force is applied to the stack in a region near the edge of the stack, with the edge of the stack being substantially disposed in a single edge plane". The claim goes on to recite "periodically driving the piercing members into the edge of the stack substantially exclusively through said edge plane and withdrawing the piercing members from the edge of the stack substantially exclusively through said edge plane a multiplicity of times". As previously noted, the prior art cutting teeth typically enter and exit through the side of the stack, not through any edge plane. Only once during the trimming of a stack is the cutting head 4 driven upwards so

that one of the teeth 5 may enter the stack through the edge plane. In those rare cases, the teeth exit the stack through the side and not by way of the edge plane.

Thus, Claim 43 is believed to be patentable as are Claims 44 and 45 which depend, either directly or indirectly, from allowable Claim 43.

Rejected Claim 48 is directed to an apparatus for conditioning the edge of a stack and has also been amended to recite the "edge of the stack being substantially disposed in a single edge plane generally normal to the parallel sheet planes." Claim 43 goes on to recite that "piercing elements" move "into the edge of the stack substantially exclusively through the edge plane and away from the edge of the stack substantially exclusively through the edge plane".

Thus, for at least substantially the same reasons set forth above regarding Claim 43, it is submitted that Claim 48 is also allowable, as are Claims 49 – 52. In addition, Claim 43 is also believed to be allowable in that the cited prior art does not disclose "piercing elements having a cutting surface disposed along a common cutting plane". As previously explained for example, Fogg shows cutting teeth 5 with cutting surfaces that are not in any common plane.

Claim 53 is also directed to a method of conditioning the edge of a stack of sheets. Among other things, Claim 53 recites "supporting the stack" and "periodically reciprocating the piercing members ... with a number of reciprocations being dependent upon the thickness of the stack." In rejecting Claim 53 in view of Fogg, the following is stated in the Office Action:

"Fogg discloses that the piercing member is reciprocated when a stack is present. The movement is dependent upon the existence of the stack. If there is a stack, there is a thickness and there is movement. If there is no stack there is not thickness and there is no movement". Page 5 of Office Action.

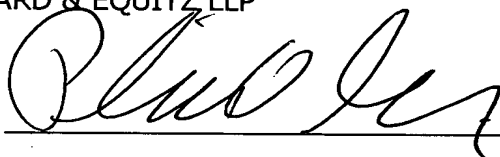
This rejection is traversed. First, Claim 53 is directed to a method of conditioning the edge of a stack. This method requires the presence of a stack - a stack having no thickness is not a stack. Among other things, the step of "supporting the stack" is not possible in the absence of a stack. This is not shown by Fogg or any other prior art. It is also not possible to drive a piercing member "into the edge of the stack" in the absence of the stack. Fogg does not disclose any type of conditioning of a non-existent stack but does show one reciprocation for each stack, with that number not changing based upon stack thickness.

In view of the foregoing, Applicants submit that Claim 53 is patentable in view of the cited art, as are Claims 54 – 55 which depend from allowable Claim 54 and add patentably significant limitations to the claim.

In conclusion, all pending claims are believed to be in condition for allowance and an early allowance is respectfully requested.

Respectfully submitted,  
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